CPS CHEMICAL COMPANY, INC.
P.O. Box 162, OLD BRIDGE, NEW JERSEY 08857/201-727-3100
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February 4, 1988

Mr. Ernest J. Kuhlwein, Jr.
Acting Chief
Bureau of Hazardous Waste Engineering
State of New Jersey Department of Environmental Protection
401 East State St.
CN028
Trenton, NJ 08625

Subject: Response to Second Technical NOD,
File No. 85-32H, EPA I.D. No. NJD002141190

Dear Mr. Kuhlwein:

Your letter of December 10, 1987 regarding the subject TNOD has been carefully reviewed and was discussed in detail on January 20, 1988 with Messrs. Mejia and Sharples of your staff at your Trenton offices.

As a result of our review and that meeting, our response is as follows:

1. The drum storage area designated for hazardous waste now contains no hazardous waste drums. All drums in this area currently consist of solid, non-hazardous waste which will be shipped to an appropriate landfill.

   The area in question is an eight (8) inch soil cement pad with a five (5) inch asphalt overlay, and is bordered on the south by an eight (8) inch curb. Monitoring wells outside the curb show no evidence of contamination. A manually activated sump collects all surface drainage in the surrounding paved work area.

   In view of the above, we restate our previous concern over constructing a supplimental secondary containment structure which will only impede access to the area. While we do not anticipate the need to store hazardous waste drums in this area in the future, it can be stated that all drums placed in the area, whether hazardous or non-hazardous will contain solid material which cannot leak or flow and which will be no threat to the environment. The area is inspected daily and any foreign material in the area from any source would be cleaned up immediately.

2. In the first NOD response it was stated that Tanks 4, 5, 6 and 16 had been removed from hazardous waste service. In that response the decontamination procedure was described in general terms. The specifics for each tank, as requested at our January 20 meeting, are as follows:

a) Tanks 4, 5, 6

Tanks 4, 5, 6 all previously contained crude dimethyl sulfoxide (DMSO), which was recovered in pure form and returned to the customer. The crude solution as received contained DMSO, water and acetone. The acetone was present at a sufficient (but low) level to render the material ignitable (flash point <140°F) and thus classified as D-001. In the recovery process the acetone was removed by fractional distillation and collected separately from the DMSO and placed in Tank 18 for ultimate incineration. The customer subsequently removed acetone from the crude DMSO prior to shipment to CPS, and thus eliminated the need for the material to be manifested. At the same time, the incoming volume of crude DMSO received was substantially reduced to the extent that it could be contained in only one (1) tank, namely Tank 5.

The decontamination procedure for closure of these three (3) tanks (4,5,6) was thus:

Tanks 4 and 6

Step 1. Drained thoroughly to remove all crude DMSO during final recovery and water rinsed to the crude recovery process.

Step 2. Rinsed with methanol to remove all traces of crude organics (DMSO and Acetone) and residual water. This methanol went to Tank 18.

Step 3. Rinsed with water to remove methanol. This water was transferred to the wet methanol tank for subsequent internal methanol recovery.

Step 4. Restored tanks to non-hazardous service. These tanks currently handle non-hazardous crude alcohols.

Tank 5

The non-hazardous crude DMSO reduced the level of acetone present in prior service to well below the D-001 level. As a result, no decontamination procedure was required. However, the customer has advised that future shipments of crude DMSO may, at times, be manifested because of fluctuating acetone levels. A single tank will suffice. As a result, we request permission to restore Tank 5 to hazardous waste service.

b) Tank 16

This tank formerly contained a gylcol mixture which was classified as D-001. The composition of this mixture changed to the extent that it was no longer ignitable by the standard flash point procedure below 140°F. As a result, conversion to the new composition rendered the tank non-hazardous. It will continue to be non-hazardous in the future.

In regard to the soil analysis reference, it our understanding that the tanks in question do not require this evaluation, as they have been in a completely contained concrete area with a four (4) foot concrete dike since 1975. The surrounding monitoring wells currently show no contamination.

3. In response to your request for additional details on the R-3 distillation system, the following information is enclosed:

   a) Diagrams of the system distillation column (T-30) showing its size, materials of construction and thickness. The unit is a packed distillation column with a 30 foot bed of 1"-316 stainless steel pall rings.

   b) A diagram of the R-3 main reboiler showing the required vessel information.

   c) A copy of the National Board certification paperwork for the R-3 small reboiler including all primary unit design information, materials of construction and thicknesses.

   d) Diagrams of the R-3 primary condenser, and bonnet receiver showing the required information.

   e) A flow schematic for the system showing all primary items of equipment, control instrumentation and safety devices.

   f) The R-3 system is a multi-product unit, and operating conditions vary based upon the products, equipment design parameters and safety devices. The maximum pressure of operation is 15 psig and full vacuum. Otherwise, all parameters are dictated by the design specifications of the equipment.

   g) Ultrasonic integrity testing of R-3 was conducted on 1/19/88. If requested, a copy of the typed report of the outside testing agency will be supplied after it is received by CPS.

4. CPS conducts visual inspections of all units as detailed in our previously submitted daily and weekly inspection formats. These inspections continually verify the integrity of all vessels and systems.

4. In addition, our operating procedures specify regular ultrasonic testing of all storage tanks involved in hazardous waste service. Attached is a layout of a typical storage tank showing a representative set of test points. A summary of our hazardous waste service tanks including past and projected ultrasonic test dates is shown below. The equipment used is standard metal thickness ultrasonic testing instrumentation (accuracy +/- .005 inches, +/- 10% max.).

VESSEL	LAST ULTRASONIC TESTING	NEXT SCHEDULED TESTING
Reactor R-3	1/19/88	1st Quarter 1989
Storage Tank 13	1/19/88	BY 7/1/89
Storage Tank 14	1/19/88	BY 7/1/89
Storage Tank 18	1/19/88	BY 7/1/89
Storage Tank 5	12/86	BY 7/1/88
Storage Tank 30	12/86	BY 7/1/88
Storage Tank 32	12/86	BY 7/1/88
Storage Tank 39	12/86	BY 7/1/88
Storage Tank 311	12/86	BY 7/1/88

If any reading during the inspection indicates a significant loss of metal, the testing is expanded to thoroughly evaluate the vessel. If any vessel is found to have significant loss of metal, it will be immediately taken out of hazardous waste service.

For the R-3 system, the configuration of the distillation column and heat exchangers prevents the use of ultrasonic testing in their evaluation. Pressure testing, and visual inspection are used to confirm their integrity. For the distillation column and heat exchanger process sides, this is done by hydraulically pressurizing the system. For the heat exchanger tubes, this is done by pressurization of the water side with concurrent inspection of the process side. All piping and minor equipment is similarly inspected while the system is under pressure. Such pressure testing is a routine part of continual operating procedure.

5. D-008 was discontinued with the replacement of lead oxide by a lead-free catalyst in 1986. The site has been free of D-008 material since 1986.

6. The Field Monitoring Manual was submitted to Mr. Coolick on October 18, 1985. As requested in the January 20 meeting, we have examined this manual and find that it is up to date. Four (4) copies of the Manual as submitted are enclosed.

7. The Closure Cost Estimate submitted with our January 12, 1987 TNOD response has been reviewed in accord with your comments and in relation to wording in N.J.A.C. 7:14A-5.12(e) as cited in 19 N.J.R. 2353 and in the Federal Register under 40 CFR 264.142. Simultaneously we have studied the EPA Guidance Manual presented at the January 20 conference by Mr. Michael Pulaski of your staff.

The text discusses costs to the owner or operator of hiring a third party to close the facility. This third party may not be a parent or subsidiary and no salvage value or economic value may be allowed. It is our contention that none of these principles have been violated in our Closure Cost Estimate and that in the current marketplace the Estimate is very conservative.

Specifically, the current cost of disposing of 200 solid, non-hazardous waste drums is a maximum of $50.00 per drum, or $10,000 total, transportation included, and prices at or near this level are available from a number of commercial outlets. These drum contents are not readily combustible and thus not suitable candidates for incineration. In the unlikely event that these same drums were classified as hazardous solids, the cost would not exceed $125 per drum, and this figure is also available at several authorized landfills.

As stated in previous correspondence, the manifested receiving wastes, namely crude methylene chloride, aminoethyl ethanolamine and dimethylsulfoxide are the property of the customer, not CPS, and must be returned intact in the event of Closure. Thus only transportation and decontamination can be assigned to their removal.

Finally, the liquid organic still bottom residues and recovered solvents which make up the manifested waste fuel shipments have been shipped to a variety of cement kilns for their high fuel value for a number of years. In no case do the current delivered costs exceed a maximum of $0.50 per gallon, at any current outlet. We do not understand your comment that such arrangements between the generator and the energy recovery facilities do not qualify. These are published retail prices which are available to any generator with fuel streams of good fuel value and with acceptable characterization profiles.

As a result of the above, it is our contention that the 1/5/87 Closure Cost Estimate is excessive and should be modified in accord with current actual retail disposal figures.

Very truly yours,

J. A. Rowe, Jr.

JAR/day
Encl.

CPS CHEMICAL COMPANY, INC. P.O. BOX 162, OLD BRIDGE, N.J. 08857 • 201-727-3100
Subsidiaries: CPS CHEMICAL COMPANY • CPS CHEMICAL COMPANY OF ARKANSAS • CPS EXPORT, LTD. • CPS CHEMICALS CANADA
Telex 844532 • CPSOLDB

October 18, 1985

Mr. Frank Coolick, Chief
Bureau of Hazardous Waste Engineering
Department of Environmental Protection
Division of Waste Management
32 E. Hanover Street
CN 028
Trenton, NJ 08625

Subject: Part B Application, NJD002141190,
Soil Contaminant Monitoring,
(FSAP)

Gentlemen:

In accord with the subject FSAP, the following information is submitted:

I. Field Monitoring

The requested samples, as outlined by Mr. Dharasker, are soil samples to a depth of six (6) inches in a location just south of the Hazardous Waste Drum Storage Area (see enclosed Site Plan). It should be noted that this entire Plant Site has been covered by eight (8) inches of soil cement and an additional three (3) to five (5) inches of asphalt for six (6) years. This exceeds the period that Hazardous Waste Drums have been stored in the designated area. In addition, numerous monitoring wells cover the area at depths ranging from 25 to 90 feet.

A. It is proposed to collect triplicate samples at four (4) locations as designated on the Site Plan. One (1) location is upgradient of the Drum Area and three (3) due south and downgradient of the drum area.

Sampling is proposed on an annual basis unless otherwise designated by your office.

B. Refer to Site Plan.

C. Number of samples as requested by your office. Frequency in accord with anticipated integrity of soil cement and control of Drum Area. Location chosen to be in proximity to Drum Area and along path of natural groundwater gradient.

D. Sampling Procedures - Equipment and Equipment Cleaning

Objective - To collect soil samples (4) from a depth of 0-6 inches for required pollutant analysis.

Equipment - 4 new Stainless Steel Trowels

Equipment Cleaning - Wash trowels in soapy water (laboratory soap i.e., Alconox) and rinse thoroughly with deionized water. Rinse trowels again with Acetone (this is not a suspected pollutant and will not be tested for). Place trowels in Aluminum Foil, wrap, and store until ready to use.

E. Sample Containers and Cleaning Procedures

Sample shuttles are prepared to exact configurations as required for the indicated project. No chemical preservatives are used for soil samples. Thermal preservation is maintained through the shuttle procedure.

Cleaning procedures are noted below. Sample bottles are never reused, but are discarded after each use.

Preparation of Shuttle Containers

a. General Cleaning

- bottles and caps are washed in laboratory dishwasher in detergent and tap water for a complete wash cycle (2 minutes wash, 2 minute rinse).

- clean bottles and caps are rinsed with deionized water, allowed to air dry in racks then capped.

b. Methacrylate esters and lead (16 oz. jars)

- follow general cleaning procedures, above.

- bottles are baked uncapped for 1 hour at 100°C in vacuum oven.

F. Sample Documentation

The request for sample analysis is done in-house or transmitted to a New Jersey certified laboratory and entered into the laboratory management computer system. A chain of custody (CC1) form is initiated by the laboratory which lists all parameter groups to be tested, the bottle type, size, and Job Number. An example CC1 from ETC is attached.

Field information is recorded on the CC2 from ETC which is also presented as an attachment.

G. QA/QC Requirements for Sampling

A Trip Blank will be prepared by the laboratory, using organic free reagent water, placed into the Shuttle, and will accompany sample containers to and from the field. This sample will be tested for designated compounds.

A Field Blank (Equipment Blank) will be utilized as well. The laboratory will provide organic free reagent water which will be exposed to site atmospheric conditions, used to rinse a representative Trowel prior to sampling, and recollected in new, unused bottles. The Field Blank will be tested for all parameters that actual field samples are tested for (suspected organics and lead).

Both the Trip Blank and Field Blank data will be used to determine whether any contamination was introduced via field and/or lab procedures.

II. Laboratory Standard Operating Procedures

The requested laboratory SOP Manual is enclosed for the compounds which could be present in the Hazardous Waste Drum Storage Area. The requested handling, analytical and data handling procedures are incorporated in this SOP Manual.

October 17,1985
Supersedes-None

C O N F I D E N T I A L

CPS Chemical Company
Old Bridge, New Jersey

ANALYTICAL PROCEDURES MANUAL

DETERMINATION OF LEAD AND METHACRYLATE ESTERS IN SOIL SAMPLES

I. Sampling Procedure for soil samples at CPS, Old Bridge, NJ

A) Obtain sample from designated areas as outlined in the Field Monitoring Manual.

B) Deliver sample to laboratory in 16 ounce flint wide mouth, tightly capped jars. Four samples for each sample point must be submitted. The first sample is for lead determination and the second sample is to be used for determination of methacrylate esters. The remaining two samples are to be set aside for retains.

C) Jars must be labelled using the standard blue tank label. All labels must be filled out as appropriate and contain the following information:

1) Material- Soil Sample
2) Location of sampling
3) Date and time of sampling
4) Name of person performing the sampling
5) Number of the sample in the set- 1 0f 4, etc.
6) any additional information as appropriate

D) Sample will be delivered to the laboratory and logged into the Sample Log Book noting:

1) Material sampled-Soil sample
2) Date and time of sampling
3) Location of sampling
4) Initials of person obtaining sample and delivering the sample to the laboratory.

E) The samples will be given to the Laboratory Technican on duty who will place them in the designated sample holding area where they will remain until the Laboratory Supervisor assigns them to be analyzed.

II. Analytical Procedures for Soil Samples

The samples will be analyzed according to the following test procedures:

A) Determination of Lead in Soil Samples by Flame Atomic Absorption. CPS Method FG-65-7

B) Determination of Methacrylate Esters in Soil By Gas Chromatography. CPS Method FG-70-11

III. Results and Post Analysis Procedures

A) The results of each analysis are to be recorded by the technican, as they are completed, in the Non-routine Analysis Laboratory Notebook.

B) The results are also to be recorded on a General Analysis Report Sheet. This sheet will contain:

1) All the information included on the sample label.
2) A listing of all the analyses performed.
3) The results obtained for each analysis.
4) Initials of all technicans involved with the sample analysis.
5) Date and time of the report.

C) The analysis report will then be submitted to the laboratory supervisor for review and approval.

D) Copies of the final report will then be distributed to the appropriate laboratory and plant personnel.

E) The remaining two samples jars will be retained in the storage area for a period of at least three months.

FG-65-7
October 17,1985
Supersedes- None

DETERMINATION OF LEAD IN SOIL SAMPLES BY FLAME ATOMIC ABSORPTION

SCOPE

This method is applicable for the determination of lead in soil samples at the ppm level.

This method includes modifications of the procedures in "Test Methods for Evaluation of Soild Waste," SW846, July, 1982 and "Laboratory Standards Operating Procedures," ETC Method AA-002-1,Environmental Testing and Certification Corporation.

SUMMARY

The sample is digested using Nitric Acid and Hydrochloric Acid and the concentration of lead in the liquor is measured using a Flame Atomic Absorption Spectrophotometer.

REAGENTS

A) Deionized water
B) 6N Nitric Acid
C) 6N Hydrochloric Acid
D) Stock Standard Metal Solution, 1000 ppm lead (Buck Scientific, E. Norwalk, Conn)
E) Commercial Grade Acetylene
F) Compressed Air; oil, moisture and dirt free.

STANDARDS PREPARATION

A) Transfer 0, 0.1, 0.5, 1.0, 1.5, and 2.0 ml of stock solution to separate 100 ml volumetric flasks.

B) Bring to volume with 1% Nitric Acid

C) The concentrations of these working solutions are 0, 1, 5, 10, 15, and 20 ppm.

D) These solutions are aspirated through the flame and the absorption for each concentration is obtained.

E) A calibration curve is made by plotting absorbance vs. concentration.

SAFETY AND HANDLING

A) Lead is toxic and should be handled with care.

B) Splash goggles must be worn whenever concentrated acid solutions are handled.

C) Evaporation and/or digestion with acids must be performed under a well ventilated acid resistant fume hood.

DETERMINATION OF LEAD IN SOIL SAMPLES BY FLAME ATOMIC ABSORPTION

APPARATUS AND MATERIALS

A) Perkin Elmer Atomic Absorption Spectrophotometer Model 290

B) Burner

C) Lead Hollow Cathode Lamp- Single element

D) Appropriate glassware, linear polyethylene, polypropylene or teflon containers cleaned in the following order:

1) Wash with detergent such as ALCONOX
2) Rinse with tap water
3) Rinse with 1:1 Nitric Acid
4) Rinse with tap water
5) Rinse with 1:1 Hydrochloric Acid
6) Rinse with tap water
7) Rinse with deionized water

INTERFERENCES

A) Large excesses of other elements may interfere with the lead signal. (e.g. 10,000 mg/l Fe enhances the lead signal)

B) Multielement lamps containing copper may interfere with the 217.0 nm lead line (Cu 216.5 nm). The lead 283.3 nm line should be used instead.

INSTRUMENT OPERATION AND SETTINGS

A) Follow manufactures instructions for operation of the instrument.

B) Wavelength- 217.0 nm (more sensitivity)
Wavelength- 283.3 nm

C) Optimum concentration range- 1 to 20 ppm

D) Detectible limit- 0.1 ppm

E) Type of flame- Oxidizing

EXTRACTION PROCEDURE

A) Decant off any standing aqueous layer on top of sample.

B) Dry entire sample in a large porcelain evaporating dish in a 60 degrees C forced air oven.

C) Pass dried sample through a #10 polymeric sieve.

D) Mix well and place approximately 20 grams in a beaker and cover with a watch glass.

DETERMINATION OF LEAD IN SOIL SAMPLES BY FLAME ATOMIC ABSORPTION

E) Re-dry sample to constant weight, ±0.2gms, at 60 degrees C. Keep in desiccator until ready for use.

F) Weigh 1.0 grams dried sample into a 250 ml griffin beaker.

G) Add 45 ml deionized water, 5.0 ml Nitric Acid and 10 ml Hydrochloric Acid.

H) Cover with a ribbed watch glass. Heat on a hot plate maintaining a temperature of 95 degrees C until volume has been reduced to 15-20 ml.

I) Cool. Add 3.0 ml 6N Hydrochloric Acid. Mix and transfer supernatant to a 100 ml volumetric flask. Rinse residue twice with deionized water and add rinsings to flask.

J) Bring to final volume of 50 ml with deionized water. Mix well and allow to settle overnight.

K) Analyze by Flame AA.

CALCULATIONS

$$\text{ppm lead} = A \left(V / W \right)$$

where:

A= ppm of lead in sample from the calibration curve

V= Final volume of sample in ml

W= weight (gms) of initial sample (dry weight basis)

FG-70-11
October 17,1985
Supersedes-None

DETERMINATION OF METHACRYLATE ESTERS IN SOIL SAMPLES BY GAS CHROMATOGRAPHY

SCOPE

This method is applicable for the determination of Methyl Methacrylate (MMA), Dimethylaminoethanol (DME), Diethylaminoethanol (DEE), Dimethylaminoethyl Methacrylate (FM-1), and Diethylaminoethyl Methacrylate (FM-2) in soil samples at the ppm level.

SUMMARY OF METHOD

The soil sample is first extracted with an equal weight of Methylene Chloride. The extract is subjected to analysis by Capillary Column Gas Chromatography using n-hexadecane as an internal standard.

REAGENTS

A) Methylene Chloride, HPLC Grade, J.T. Baker Chemical Co.

B) n-Hexadecane, 99%, Humphrey Chemical Co., N.Haven, Conn.

C) n-Dodecane, 99%, Humphrey Chemical Co.

D) Isobutanol, 99%, Aldrich Chemical Co.

E) Acetone, Reagent Grade, J.T. Baker Chemical Co.

F) Deionized Water

NOTE: All reagents must be analyzed by Capillary GC prior to use to ensure that they do not contain impurities having retention times within the windows of the compounds of interest.

EQUIPMENT AND INSTRUMENTATION PARAMETERS

A) Appropriate glassware cleaned in the following order:
   1) Wash with detergent such as ALCONOX
   2) Rinse with tap water
   3) Rinse with deionized water
   4) Rinse with acetone
   5) Rinse with methylene chloride

B) Jar roller mill, Norton Chemical or equivalent.

C) Syringe, Hamilton 701N, 10 microliters

DETERMINATION OF METHACRYLATE ESTERS IN SOIL SAMPLES BY GC

D) VARIAN Model 3700 Gas Chromatograph equipped with a Capillary Inlet Splitter.

E) HEWLETT PACKARD 3353 DATA SYSTEM for data acquisition and calculation.

F) LINEAR 1200 strip chart recorder

G) Column: 50 meter x 0.22 mm ID Vitreous (fused) Silica SUPEROX 0.1 Capillary Column. SGE

H) Parameters

1)	Carrier:	helium at 1 cc/min
2)	Make up gas:	helium at 30 cc/min
3)	Column Pressure:	20 psi
4)	Air flow:	300 cc/min
5)	Hydrogen flow:	30 cc/min
6)	Detector:	FID
7)	Detector temperature:	250 degrees C
8)	Injection port temp:	250 degrees C
9)	Split ratio:	50:1
10)	Temp. Program:	Initial 40 degrees C, hold 8 min. Program 8 degrees/min to 220 Hold 30 minutes
11)	Sample size:	2 microliters
12)	Attenuation:	1
13)	Range:	10-12
14)	Recorder setting:	10 mv
15)	Chart speed	0.5 cm/min

PREPARATION OF INTERNAL STANDARD SOLUTION

A) Weigh, using a four place balance, 1.0 grams of n-hexadecane and 99.0 grams of isobutanol into a clean 4 oz. amber narrow mouth screw cap bottle. Store tightly capped in a refrigerator when not in use.

B) Calculate the % of n-hexadecane (n-C16) as follows:

$$\% \text{ n-C16} = \frac{\text{gms of n-C16}}{\text{gms of n-C16 + gms isobutanol}} \times 100$$

PREPARATION OF CALIBRATION BLEND

A) Weigh, using a four place balance, the following into a clean 4 oz. amber narrow mouth screw cap bottle:

1) 1.0 gm Methyl Methacrylate
2) 1.0 gm Dimethylaminoethanol
3) 1.0 gm Diethylaminoethanol
4) 1.0 gm Dimethylaminoethyl Methacrylate

DETERMINATION OF METHACRYLATE ESTERS IN SOIL SAMPLES BY GC

5) 1.0 gm Diethylaminoethyl Methacrylate
6) 95.0 gm Isobutanol

This is Stock Solution A. Store in refrigerator when not in use.

B) Weigh, using a four place balance, the following into a clean narrow mouth 4 oz. amber screw cap bottle:
1) 0.5 gms Stock Solution A
2) 0.5 gms Internal Standard Solution
3) 50.0 gms Methylene Chloride

This solution is to be made fresh each time this test is to be run.

Calculate the ppm of each component.
Inject sample of this solution into the gas chromatograph.
If the result obtained differs from the calculated result by more than 2%, discard and prepare again.

SAMPLE EXTRACTION PROCEDURE

A) Decant off any standing aqueous layer on top of the sample.

B) Transfer approximately 100 gm of sample to a clean tared quart wide mouth jar. Reweigh jar to obtain sample weight.

C) Add an equal weight of Methylene Chloride to the jar and cap tightly.

D) Place jar on a roller mill and roll for a period of 4 hours.

E) After the extraction period, allow the sediment to settle for 1 hour.

PREPARATION OF SAMPLES FOR GAS CHROMATOGRAPHIC ANALYSIS

A) Weigh into a clean, tared 4 oz. amber screw cap bottle:
1) 0.5 gm of n-C16 Internal Standard Solution
2) 50.0 gms of settled sample extract

B) Cap tightly and shake well.

C) Analyze by Capillary GC

NOTE: All weighings should be done as rapidly as possible, with the sample bottle capped between weighings, to minimize loss by evaporation.

DETERMINATION OF METHACRYLATE ESTERS IN SOIL SAMPLES BY GC

D) Calculations

$$\text{ppm n-C16} = \frac{(\%\ \text{n-C16 in Isobutanol})(\text{gms internal std})}{(\text{gms of sample extract})(100)} \times 10^6$$

The ppm of each component is reported by the HEWLETT PACKARD DATA SYSTEM after the ppm n-C16 is entered into the program.

INTERFERENCES

A) All reagents must be checked to determine the presence of any impurities which will have the same retention time as the compounds that are being tested for.

B) the internal standard, n-C16, must elute as a single peak with no interferences. In the event that any peaks present co-elute with the internal standard, a substitute internal standard such as n-dodecane is to be used.

ROUTINE AND PREVENTIVE MAINTENANCE SCHEDULES

A) The Capillary Gas Chromatograph should be operated according to the recommended procedures of the manufacturer.

B) The instrument shall be maintained in proper working order and checked prior to the start of the analysis paying particular attention to calibration of flows of all gases, replacement of injection port liners and septa, etc.

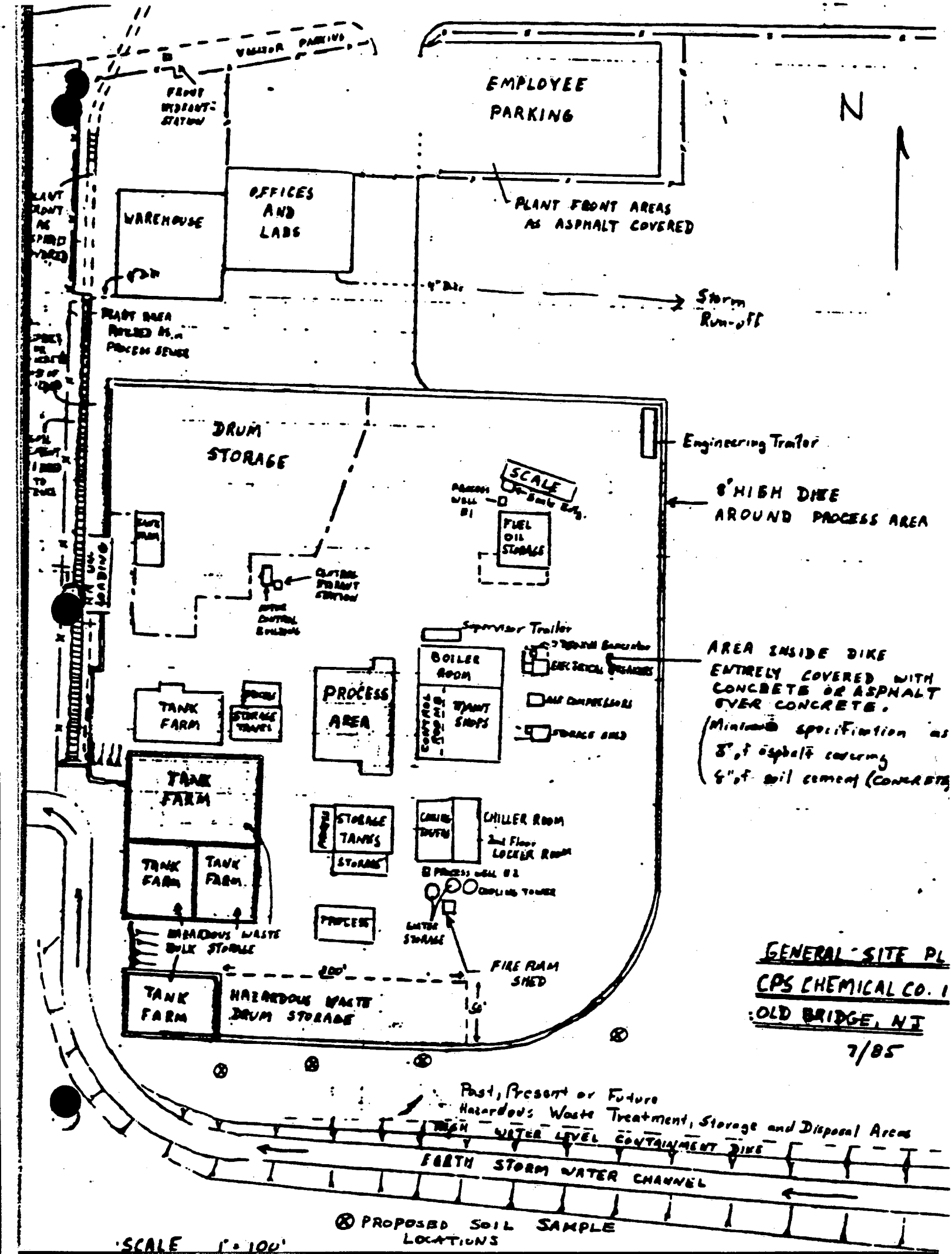
C) The chromatograms should be examined paying particular attention to the shape and expected retention times of the components. The column should be replaced if necessary.

The above FSAP comprises our current understanding of the recommended procedure. Please advise if additional information or clarification is required.

Very truly yours,

J. A. Rowe, Jr.
V. P. Operations

JAR/cy
Encl.
cc: Ernest Kuhlwein (w/encl.)
Shree Dharasker (w/encl.)
Angel Chang, USEPA (w/encl.)



GENERAL SITE PL
CPS CHEMICAL CO. I
OLD BRIDGE, NJ
7/85

CHAIN OF CUSTODY FORM (CC1)

Date Sealed _____ By: _____

Company: _____ Attn.: _____

Facility/Site: _____ Phone: ( ) _____

Address: _____

SAMPLE IDENTIFICATION

Facility: _____

Sample Point: _____

Source Codes

We (W) Outfall (O) Bottom Sediment (E) Surface Impoundment (L) Leachate Collection Sys (C) Other

St (S) River/Stream (R) Generation Point (G) Treatment Process (T) Land Origin (L) Specify: _____

SHUTTLE CONTENTS

BOTTLE				ANALYSIS	SAMPLER	LAB
No	Type	Size	Preserv.		Observations	Observations

CHAIN OF CUSTODY CHRONICLE

1. Shuttle Opened By: (print) Date: Time:
   Signature: Seal #: Intact:
2. I have received these materials in good condition from the above person.
   Name: Signature:
   Date: Time: Remarks:
3. I have received these materials in good condition from the above person.
   Name: Signature:
   Date: Time: Remarks:
4. Shuttle Sealed By: (print) Date: Time:
   Signature: Seal #: Intact:

ETC USE ONLY Opened By: _____

SAMPLER _____

ETC ENVIRONMENTAL TESTING and CERTIFICATION

FIELD PARAMETER FORM (CC2)

ETC JOB # _____

Sample Point [ ] Source Code [ ] Sample Point I.D.

FIELD PROCEDURES

[ ] PURGE DATE (YY MM DD) [ ] START PURGE (2400 Hr Clock) [ ] ELAPSED HRS [ ] WATER VOL IN CASING (Gallons) [ ] VOLUME PURGED (Gallons)

SAMPLING METHOD: _____

Sampler Type [ ] A-Submersible Pump, B-ISCO, C-Bladder Pump, D-Dipper/Bottle, E-Bailer, F-Scoop/Shovel, X-Other _____ (SPECIFY OTHER)

Sampler Material [ ] A-Teflon, B-Metal, C-PVC, D-Plastic, X-Other _____ (SPECIFY OTHER)

Tubing Material [ ] A-Teflon, B-Tygon, C-Polyethylene, D-Silicon, X-Other _____ (SPECIFY OTHER)

Sample Composited [Y/N] _____ Procedure/Proportions

FIELD MEASUREMENTS

Well Elevation (ft/msl) [ ]

Depth to Ground water (ft) [ ]

Groundwater Elevation (ft msl) [ ]

Well Depth (ft) [ ]

Sample Depth (non-well) (ft) [ ]

1st	[ ] ph (STD)	1st	[ ] spec. cond. um/cm at 25° C	[ ] (other parameter)	[ ] value	[ ] units
2nd	[ ] ph (STD)	2nd	[ ] spec. cond. um/cm at 25°C	[ ] (other parameter)	[ ] value	[ ] units
3rd	[ ] ph (STD)	3rd	[ ] spec. cond. um/cm at 25°C	[ ] (other parameter)	[ ] value	[ ] units
4th	[ ] ph (STD)	4th	[ ] spec. cond. um/cm at 25°C	[ ] (other parameter)	[ ] value	[ ] units

[ ] Sample Temp (°C)

[ ] Turbidity NTU

FIELD COMMENTS

Sample Appearance: _____

Weather Conditions: _____

Other: _____

FILTERING: Use Chain of Custody (CC1) to indicate which bottles were filtered

Sampler: _____ (Print) Employer: _____

I certify that sampling procedures were in accordance with applicable EPA state and corporate protocols.

_____ (Date) _____ (Signature)

ETC ENVIRONMENTAL TESTING and CERTIFICATION CORPORATION

MICHAEL BONOMO
Project Manager

October 15, 1985

Mr. Harvey Weiss
CPS Chemical
Old Water Works Road
Old Bridge, NJ 08857

Dear Harvey,

As we discussed, I have enclosed the information needed to respond to Section II, Laboratory Standard Operating Procedure (SOP) Manual. I have also addressed Section I, Field Monitoring- D. Equipment and Equipment Cleaning; E. Sample Containers and Cleaning; F. Sample documentation; and G. QA/QC requirements for sampling.

I'd like to get together and discuss organizing the data management needs for this project at least one month before the start of sampling.

Sincerely,

Michael Bonomo

MB/res

Enclosure

284 RARITAN CENTER PARKWAY • EDISON, NJ 08837 (201) 225-6713 TELEX 710-998-0504

I. Field Monitoring

D. Sampling Procedures - Equipment and Equipment Cleaning

Objective - To collect soil samples (6) from a depth of 0-6 inches for full priority pollutant analysis.

Equipment - 6 new Stainless Steel Trowels

Equipment Cleaning - Wash trowels in soapy water (laboratory soap i.e., Alconox) and rinse thoroughly with deionized water. Rinse trowels again with Acetone (this is not a priority pollutant and will not be tested for). Place trowels in Aluminum Foil, wrap, and store until ready to use.

E. SAMPLE CONTAINERS AND CLEANING PROCEDURES

ETC preconfigures Shuttles to exact project requirements, including the recommended sample sizes, container types and preservatives needed to ensure sample integrity and to allow for proper quality assurance.

WATER

Parameter	Bottle	Preservative
Volatile Organics	Two 40 ml vials	Sodium Thiosulfate
Extractables	3 amber liter bottles	None
Metals	1 plastic liter bottle	Nitric Acid
Cyanide	1 125 ml amber	Sodium Hydroxide
Phenols	1 125 ml amber	Sulfuric Acid

All preservatives are included in the Shuttles with appropriate instructions on proper filling of the sample bottles. No chemical preservatives are used for soil samples, and thermal preservation is provided via the Sample Shuttle.

To prevent contamination of sample containers, the following cleaning procedures are strictly adhered to at ETC. ETC never reuses sample bottles. They are discarded after a single use.

PREPARATION OF SHUTTLE GLASSWARE

a. General Cleaning

- bottles and caps are washed in dishwasher in detergent and tap water for a complete wash cycle (2 minutes wash, 2 minute rinse).

- clean bottles caps are rinsed with deionized water, allowed to air dry in racks then capped.

b. Acids and Base/Neutral Sample Bottles (1 liter amber)

- above cleaning procedure.

- bottle is air dried, Teflon capped and labeled.

c. Volatiles (40 ml vials, clear)

- follow general cleaning procedures, above.

- bottles are baked uncapped for 1 hour at 100° in vacuum oven.

- approximately 10 mg sodium thiosulfate is added; the bottle is capped (Teflon) and labeled.

d. Amber Bottles (125 ml)

- bottles and caps are cleaned according to general cleaning procedure.

- bottles are prepared and labeled according to analysis just prior to Shuttle packing. One is furnished with preservatives for phenols and the other preservatives for cyanides (as per EPA).

e. Plastic Bottles

- bottles and caps are cleaned according to general cleaning procedures.

- bottles are prepared and labeled according to analysis just prior to Shuttle packing.

For soil monitoring programs only the 40ml VOA vials and a 1liter amber bottle are used for full priority pollutant analysis. The same glassware cleaning procedures apply.

F. SAMPLE DOCUMENTATION

The request for sample analysis is called in to ETC and entered into our laboratory management computer system. A chain of custody (CC1) form is initiated by ETC which lists all parameter groups to be tested, the bottle type, size, preservative, and ETC Job Number. An example CC1 is attached.

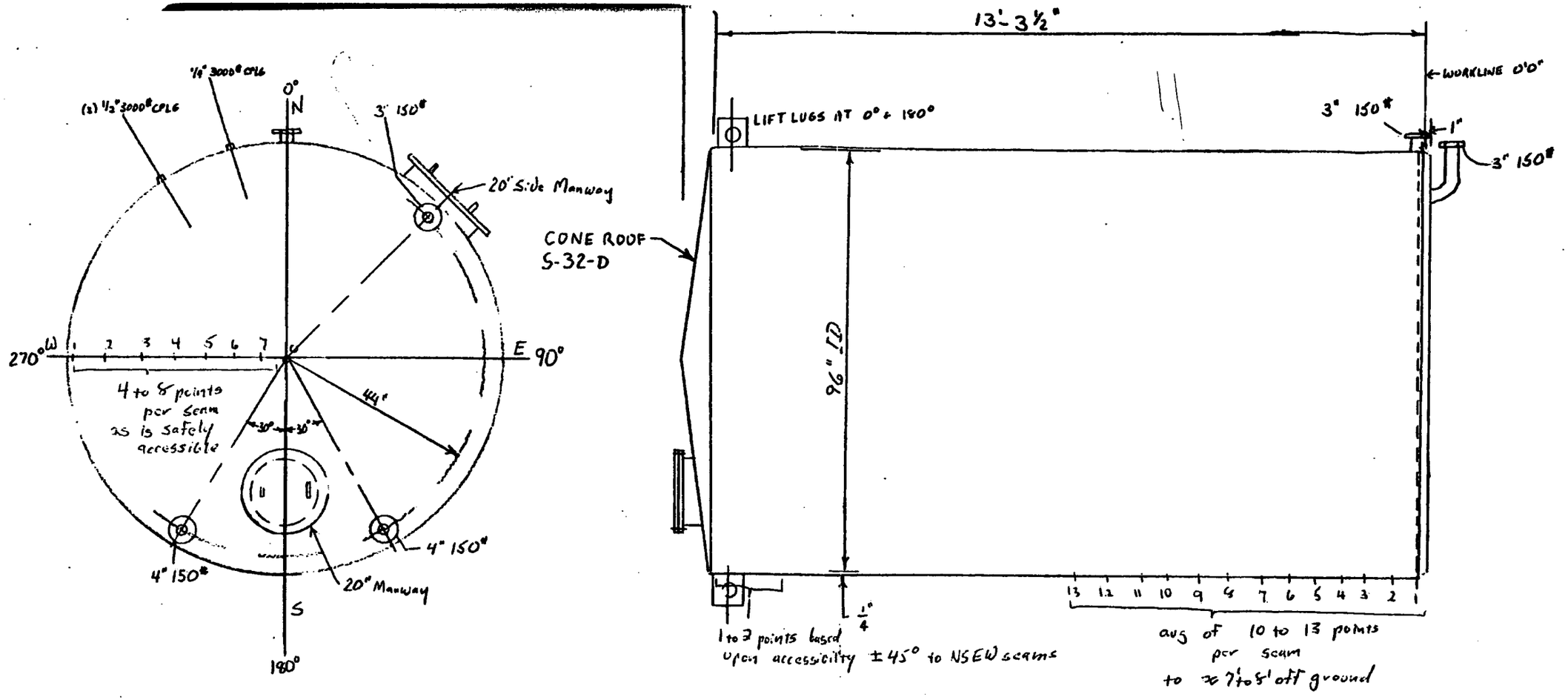
Field information is recorded on the CC2 which is also presented as an attachment.

G. QA/QA REQUIREMENTS FOR SAMPLING

A Trip Blank will be prepared by the ETC Laboratory, using organic free reagent water, placed into the Shuttle, and will accompany sample containers to and from the field. This sample will be tested for priority pollutant volatile compounds.

A Field Blank (Equipment Blank) will be utilized as well. The ETC Laboratory will provide organic free reagent water which will be exposed to site atmospheric conditions, used to rinse a representative Trowel prior to sampling, and recollected in new, unused bottles. The Field Blank will be tested for all parameters that actual field samples are tested for (Full Priority Pollutants and Lead).

Both the Trip Blank and Field Blank data will be used to determine whether any contamination was introduced via field and/or lab procedures.



Tank Inspection along 4 seams
(North, South, East and West)

Seams include the side walls and top of the vessel. (as safely accessable)

Points every 6 to 12" analyzed starting at the vessels bottom.

Points every 12" across the top head

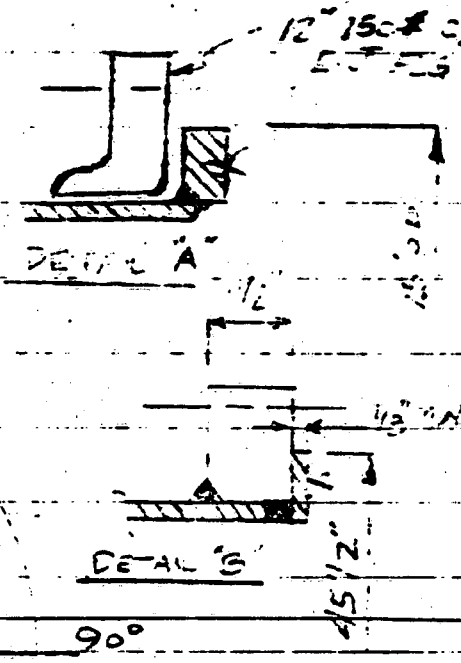
1 to 2 points from the top head down the vessels side. (For seams as

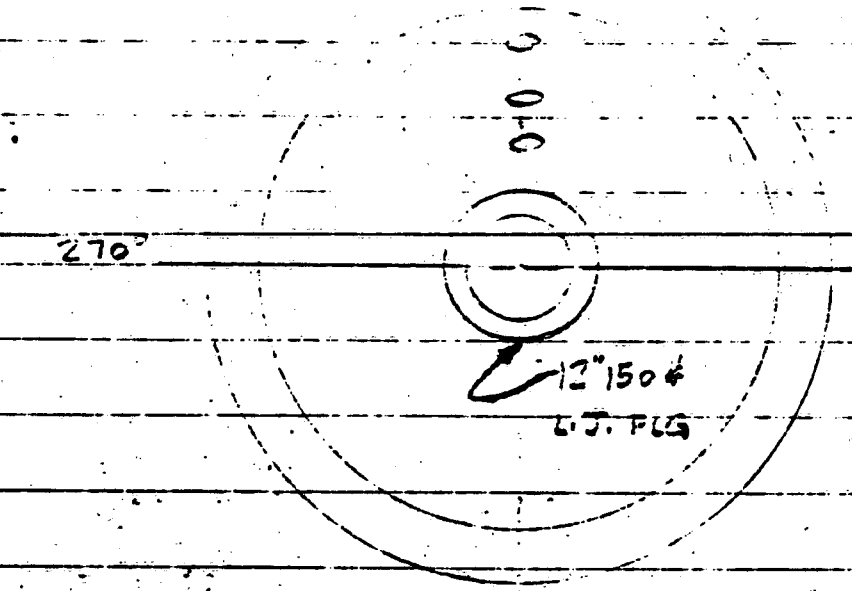
CPS Chemical Company Inc
Old Bridge, N.J.

Layout for Typical Tank

TRANSITION

T.P T-30 C.I. A.W.W.A

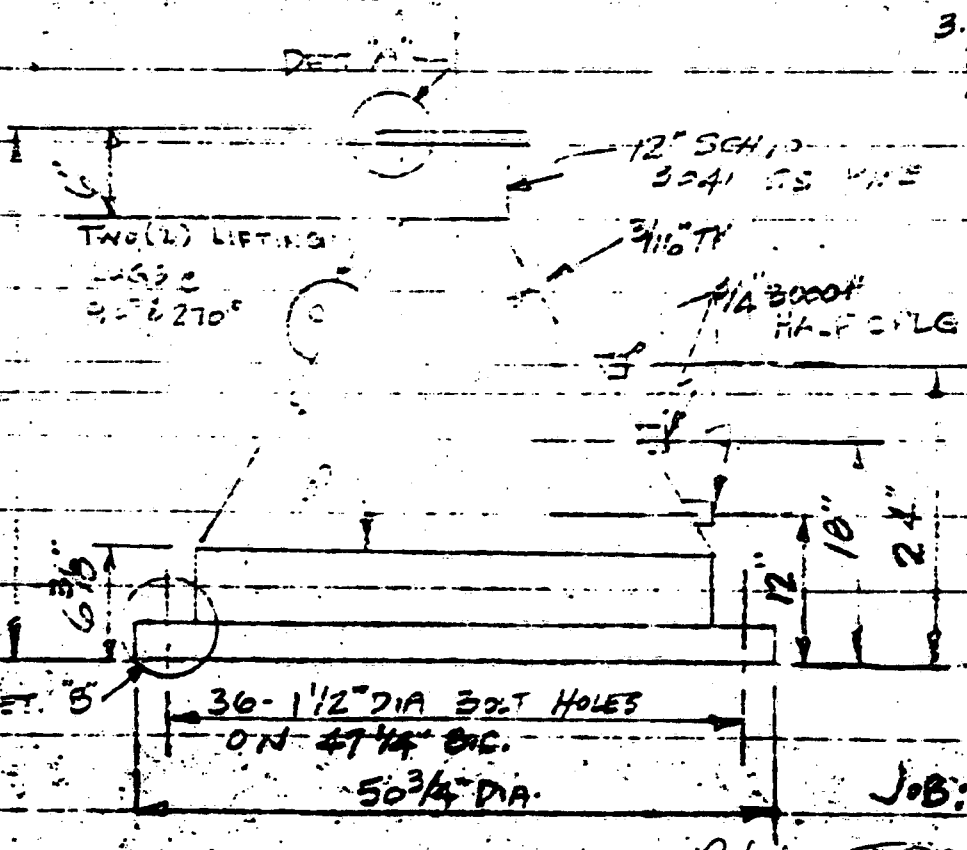




NOTES: 1. ALL WETTED PARTS 304L S.S.

2. DESIGN 150 PSI @ F.V. @ 300°

3. GASKET SURFACE 32 SERRATIONS/INCH 1/64" DEEP



JOB: CPS CHEMICAL

T30 P.O. # E 2054

FORM R-1, REPORT OF WELDED ☐ REPAIR OR ☒ ALTERATION
As required by the provisions of the National Board Inspection Code

11210

1. Work done by RUBICON INDUSTRIES CORP., 848 EAST 43RD STREET, BROOKLYN, N. Y. 1588
(name and address of repair or alteration organization) (serial no.)

2. Owner CPS CHEMICAL CO., INC., OLD WATERWORKS RD., OLD BRIDGE, N.J. 08857
(name and address of owner)

3. Location of installation SAME AS ABOVE.
(name and address)

4. Unit identification HEAT EXCHANGER (boiler, pressure vessel) Name of manufacturer PROCESS ENGINEERING & MACHINE CO.

5. Identifying nos. 3224 (mfgr. serial no.) 1665 (National Board no.) (jurisdiction) (other) 1965 (year built)

6. Description of work: RE-TUBE UNIT WITH 1" O.D. X 14 GA. SEAMLESS SA213 316L SS STRAIGHT TUBES
(use back, separate sheet, or sketch if necessary)

8'-0" LONG. SUPPLY NEW 18" O.D. X .375 SA53B ERW C/S SHELL X 8'-0" LONG. RE-USE

EXISTING SHELL EXPANSION JOINT, NOZZLES & TUBESHEETS.

SHELL Pressure test, if applied 265 psi

7. Remarks: Attached are Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors for the following items of this report:

(name of part, item number, mfgr's name, and identifying stamp)

CERTIFICATE OF COMPLIANCE

The undersigned certifies that the statements made in this report are correct and that all design, material, construction, and workmanship on this ALTERATION (repair, alteration) conform to the National Board Inspection Code.

Certificate of Authorization no. 19,483 to use the "U" symbol expires JUNE 2, 1990.

Date 10/23/87 Signed RUBICON INDUSTRIES CORP. (repair, alteration organization) by [signature] (authorized representative)

CERTIFICATE OF INSPECTION

The undersigned, holding a valid Commission issued by the National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the state or province of NEW YORK and employed by ARKWRIGHT MUTUAL INS. CO. of WALTHAM, MASS. has inspected the work described in this data report on 10/23, 1987 and state that to the best of my knowledge and belief this work has been done in accordance with the National Board Inspection Code.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection, except such liability as may be provided in a policy of insurance which the undersigned's insurance company may issue upon said object and then only in accordance with the terms of said policy.

Signed: [signature] (Inspector) Date 10/23, 1987 Commissions 6711NB (National Board, state or province and number)

This form may be obtained from the National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Ave., Col's, Oh. 43229. NB-2 Rev

R-3 Small Reboiler

FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS
As required by the Provisions of the ASME Code Rules

1. Manufactured by Process Engineering & Machine Co. Inc. 442 York St. Elizabeth, N.J
(Name and address of manufacturer)

2. Manufactured for Crawford & Russell, Inc., 7 Market St., Stamford, Connecticut
(Name and address of Purchaser)

3. Type Vert. (Horiz. or Vert.) Kind Heat Exch. (Tank, Jacketed, Heat Exch.) Vessel No. 3224 (Mfrs. Serial) Natl. Bd. No. [illegible] (State & State No.) [illegible]

Items 4 to 9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of heat exchangers

4. SHELL: Material SA-53-B(OH) (Kind and Spec. No.) T.S. 60,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness .375 In. Corrosion Allowance 1/16 In. Diam. 1 Ft. [illegible] In. Length [illegible]

5. SEAMS: Long SMLS (Welded, Dbl., Single, Lap, Butt) H.T. No (Yes or No) X.R. No (Spot or Complete) Sectioned No (Yes or No) Efficiency 100
Girth W.S.B. H.T. No X.R. No Sectioned No No. of courses 1(Ea.)

6. HEADS: (a) Material T.S. (b) Material T.S.

Location Top, bottom, ends	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure
(a)								
(b)								

If removable, bolts used (Material, Spec. No., T.S., Size, Number) Other fastening (Describe or Attach Sketch)

7. STAYBOLTS (Material) If hollow (Size of Hole) Attachment (Threaded, Welded) Pitch (Horiz.) x (Vert.) Diam.

8. JACKET CLOSURE (Describe as ogee & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch.)

9. Constructed for max. allowable working press. 175 psi. at max. temp. 400 °F. ~~Min. temp. (when less than −20°)~~ -------- °F. Hydrostatic ~~Pneumatic or Combination~~ Test Press. 265

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary, Material SA-240-TP-316-L (Kind & Spec. No.) Diam. 19.01 In. (Subject to Pressure) Thickness 1-1/2 In. Attachment Welded (Welded, Bolted)
Floating, Material (Kind & Spec. No.) Diam. In. Thickness In. Attachment

11. TUBES: Material SA-249 TP316-L (Kind & Spec. No.) O.D. 1 In. Thickness #16 ~~Inches or~~ Gage Number 116 Type Straight (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. SHELL: Material SA240TP316L (Kind and Spec. No.) T.S. 70,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness 1/8 In. Corrosion Allowance 0 In. Diam. 1 Ft. 6 In. Length 1 Ft. 3 In. [16' 0" 2-7/8"]

13. SEAMS: Long W.D.B. (Welded, Dbl., Single, Lap, Butt) H.T. No (Yes or No) X.R. No (Spot or Complete) Sectioned No (Yes or No) Efficiency 70
Girth W.D.B. H.T. No X.R. No Sectioned No No. of courses 1(Ea.)

14. HEADS: (a) Material T.S. (b) Material T.S. (c) Material T.S.

Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Top, bottom, ends	1/8"	[illegible]	1-1/8"					Concave
(b) Channel								
(c) Floating								

If removable, bolts used (a) [illegible] (b) [illegible] (Material, Spec. No., T.S., Size, Number)
(c) Other fastening (Describe or Attach Sketch)

15. Constructed for max. allowable working press. 75 psi. at max. temp. 350 °F. ~~Min. temp. (when less than −20°)~~ -------- °F. Hydrostatic ~~Pneumatic or Combination~~ Test Press. 115

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number Size Location

17. NOZZLES: Continued on other side when required.

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	Attach
Inlet	(1)	3"-150#ASA SO		SA-53-B(OH)	Sch. #40	-------	Welded
Outlet	(1)	1"-150#ASA SO		SA-106-B(OH)	Sch. #160	-------	Welded
Vent, Drain, &Gage	(4)	3/4"	Coupling	F/Stl.	3,000#	-------	Welded

18. INSPECTION OPENINGS: Manholes, No. Size Location
Handholes, No. Size Location
Threaded, No. Size Location

19. SUPPORTS: Skirt No (Yes or No) Lugs 1 (Number) Legs (Number) Other (Describe) Attached Shell-Welded (Where & How)

20. REMARKS Vessel to be used as a Reboiler in a chemical process. TEMA size 17"-9", Type BEM C & R P.O.# CR-6437-171-M, Item # H-115
(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part)
[1] If postweld heat-treated.
[2] List other internal or external pressure with coincident temperature when applicable.

FORM U-1 (back)

* Resale: Tenneco Chemicals, Inc.
Piscataway, New Jersey

** Equippe with "Adsco" Expansion Joint

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Unfired Pressure Vessels.

Date NOV 4 1965 19 Signed Process Engineering & Machine Company, Inc. (Manufacturer) By [signature]

Certificate of Authorization Expires December 31, 1967

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Process Engineering & Mach ne Co., Elizabeth, New Jersey

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of New Jersey and employed by The State of New Jersey have inspected the pressure vessel described in this manufacturer's data report on NOV 4 1965, 19, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date NOV 4 1965 19

[signature] Commissions N.B. # 4257
Inspector's Signature Nat'l Board or State and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of _____ and employed by _____ of _____ have compared the statements in this manufacturer's data report with the described pressure vessel and state that parts referred to as data items _____ not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. The described vessel was hydrostatically tested at a hydrostatic test of _____ psi.

By signing this certificate neither the inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

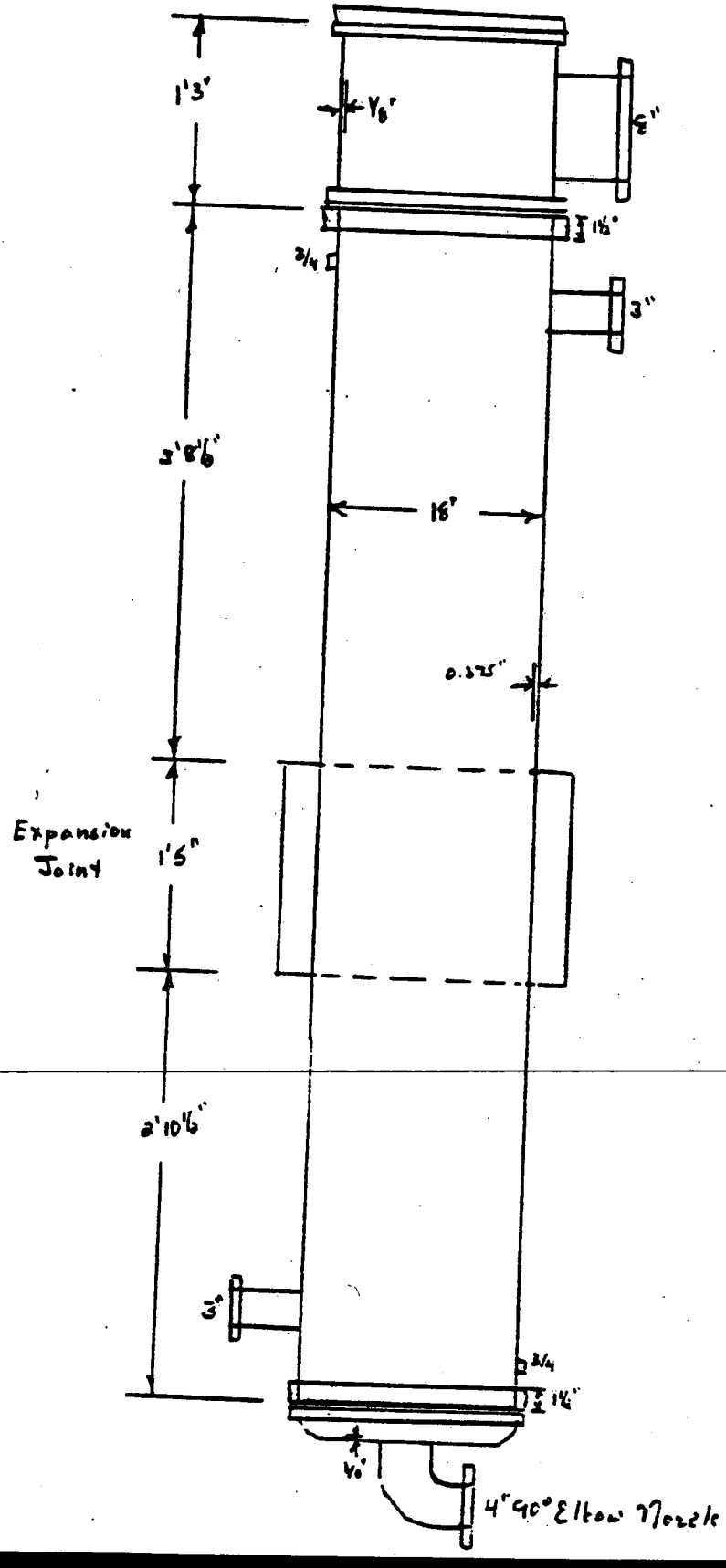
Date _____ 19 _____

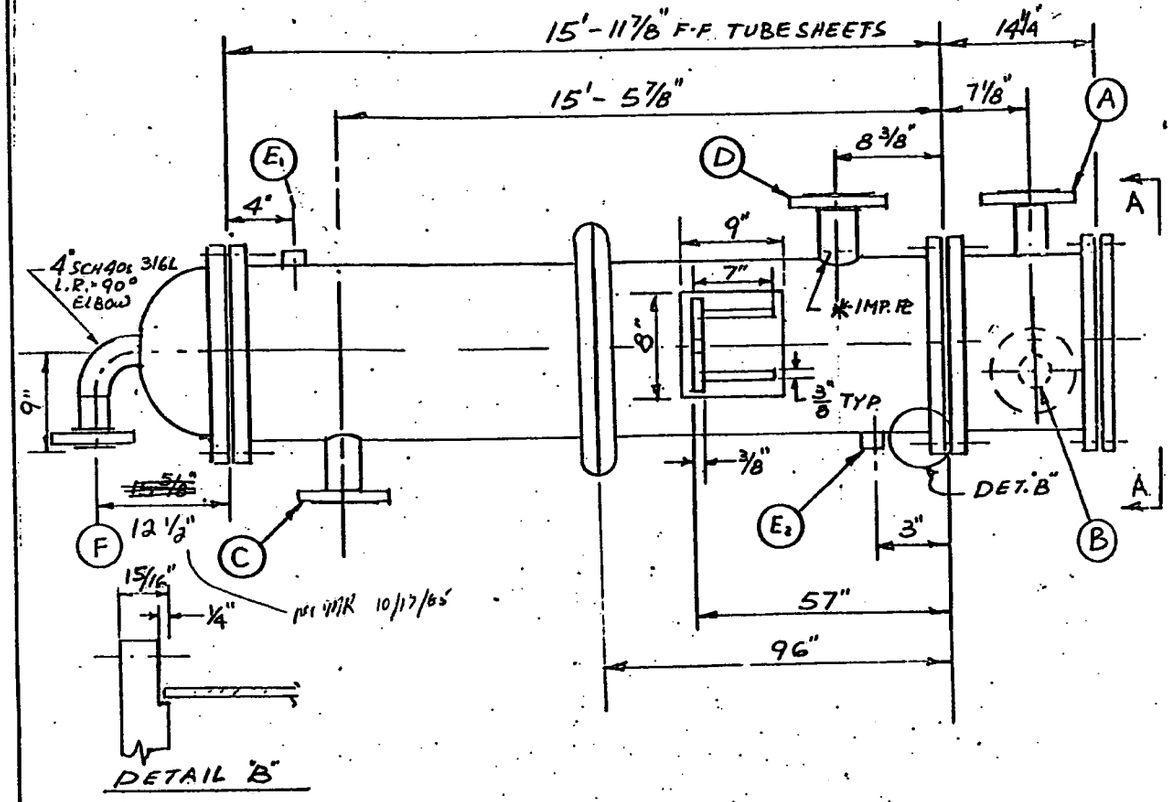
_____ Commissions _____
Inspector's Signature Nat'l Board or State and No.

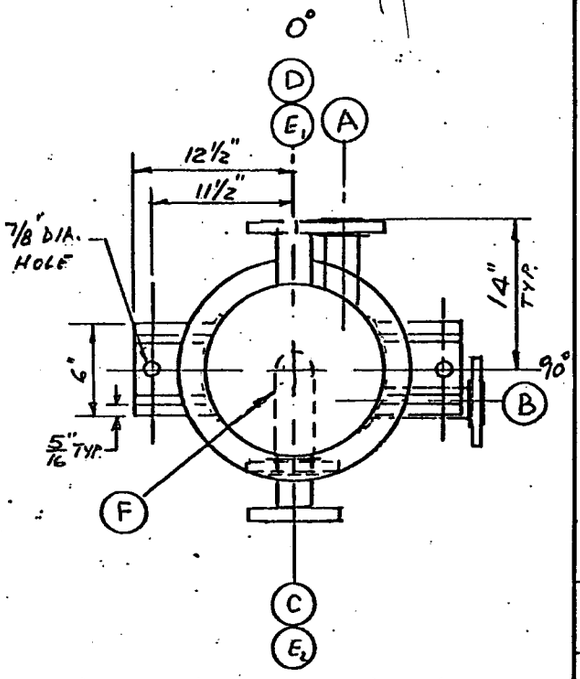
17. NOZZLES: (continued)

Purpose (Inlet Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
Inlet	(1)	4"-150#ASA	LJ	SA-312-TP-316-L	Sch #10	---	Welded
Outlet	(1)	8"-150#ASA	LJ	SA-240-TP-316-L	1/8"	-----	Welded
Vent & Gage	(5)	3/4"	Coupling	S/Stl 316-L	3,000#	-----	Welded

CPS Hot Oil Reboiler Drawing
(per present Heat Exchanger Layout)







GENERAL NOTES

1. CONSTRUCTION TO COMPLY WITH A.S.M.E. CODE SECTION VIII DIV. 1 LATEST EDITION.
2. A.S.M.E. STAMP & NAT'L. BD. INSPECTION. ☒ YES ☐ NO
3. TEMA CLASS C , TYPE AEM
4. 565 SQ. FT. HEAT TRANSFER SURFACE.
5. ALL BOLT HOLES TO STRADDLE CENTERLINES.
6. SEE "A-A" VIEW FOR TRUE NOZZLE ORIENTATION.
7. PAINT: CARBON STEEL ONLY ONE SHOP COAT
8. WEIGHT: 3900 LBS. EMPTY
   5400 LBS. FLOODED
9. REUSE * ITEMS

DESIGN CONDITIONS:

	SHELL SIDE	TUBE SIDE
DESIGN TEMPERATURE	450 °F.	450 °F.
DESIGN PRESSURE	300 P.S.I.	80 P.S.I.
TEST PRESSURE	450 P.S.I.	128 P.S.I.
CORROSION ALLOWANCE	1/16"	— EXCEPT TUBES
RADIOGRAPHY	—	—

MATERIALS OF CONSTRUCTION	
SHELL	16" O.D. SEAMLESS STEEL PIPE SA-53B SCH 30 (.375 NOM.)
EXP. JT.	24"OD. x 5/16" TK. SA-515-70 FLG. ONLY HEAD.
* TUBESHEETS	20 3/8" O.D. 316L STAINLESS STEEL SA-240 1 1/8" TK NOM.
TUBES	180 - 3/4 O.D. X 14 BWG SA-213 316L SMLS S.S. TUBES 16'-0 LG ON 15/16 PITCH
* BONNET / CHANNEL FLG	20 1/8 O.D. STL SA-285-C 1 5/8" FACED WITH 1/8" MIN 316L S.S.
* CHANNEL CYL.	16" O.D. 316L STAINLESS STEEL SA-240 3/16 TK.
* BONNET COVER	16" O.D. 316L S.S. SA-240 3/16" TK ASME F&D HEAD
* BAFFLES	STEEL SEGMENTAL TYPE 24 NOM. PITCH 45 % VERT CUT (7 REQ'D)
* CHANNEL COVER	20 3/16" O.D. STEEL SA-285C 3/8" TK. FACED WITH 1/8" MIN. 316L SS.
GASKETS	COMPRESSED ASBESTOS 1/16" TK
BOLTING	ALLOY STEEL SA-193 B7 STUDS & SA-194 CL. 2H NUTS
SHELL SUPPTS.	STEEL A-36

NOZZLES & FITTINGS				
MARK	SIZE	DESCRIPTION	NECK	SCH
A	4"	150# STD. ASA F.F. SOF SA-105 @ 1/16" MIN 316 SS. FACE	SA-312 316L	40
B	4"	150# STD. ASA F.F. SOF SA-105 @ 1/16" MIN 316 SS. FACE	SA-312 316L	40
C	4"	300# STD. ASA R.F. SOF SA-105	SA-234 C.S.	80
D	6"	300# STD. ASA R.F. SOF SA-105	SA-516	80
E1,2	3/4	3000# F.S. HALF CPLG. SA-105 @ PLUG		
F	4"	150" STD ANSI L.J. FLG SA-105 @ STUB END	SA-312 316L	40

NO.	REVISION	BY	DATE
0	ISSUED FOR CUSTOMER APPROVAL	F.C.	10-1-85

CUSTOMER CPS CHEMICAL CO., INC.
P.O. BOX 162 OLD BRIDGE, N.J. 08857
P.O. NO. E-43815
JOB
RUBICON JOB NO. 1471
RUBICON MODEL NO. VT16BI-192 VE
TAG EQUIP. NO. R-3 REBOILER
NO. UNITS REQD. ONE (1)

RUBICON INDUSTRIES CORP
848 E. 43 ST. BROOKLYN, N.Y.C. 11210

DRAWN F.C.	SCALE ~	B-1471	REV. 0
CHECKED	DATE 10-1-85		
APPROVED	DATE		

BONNET RECEIVER

BOTTOM T-30 CONDENSER

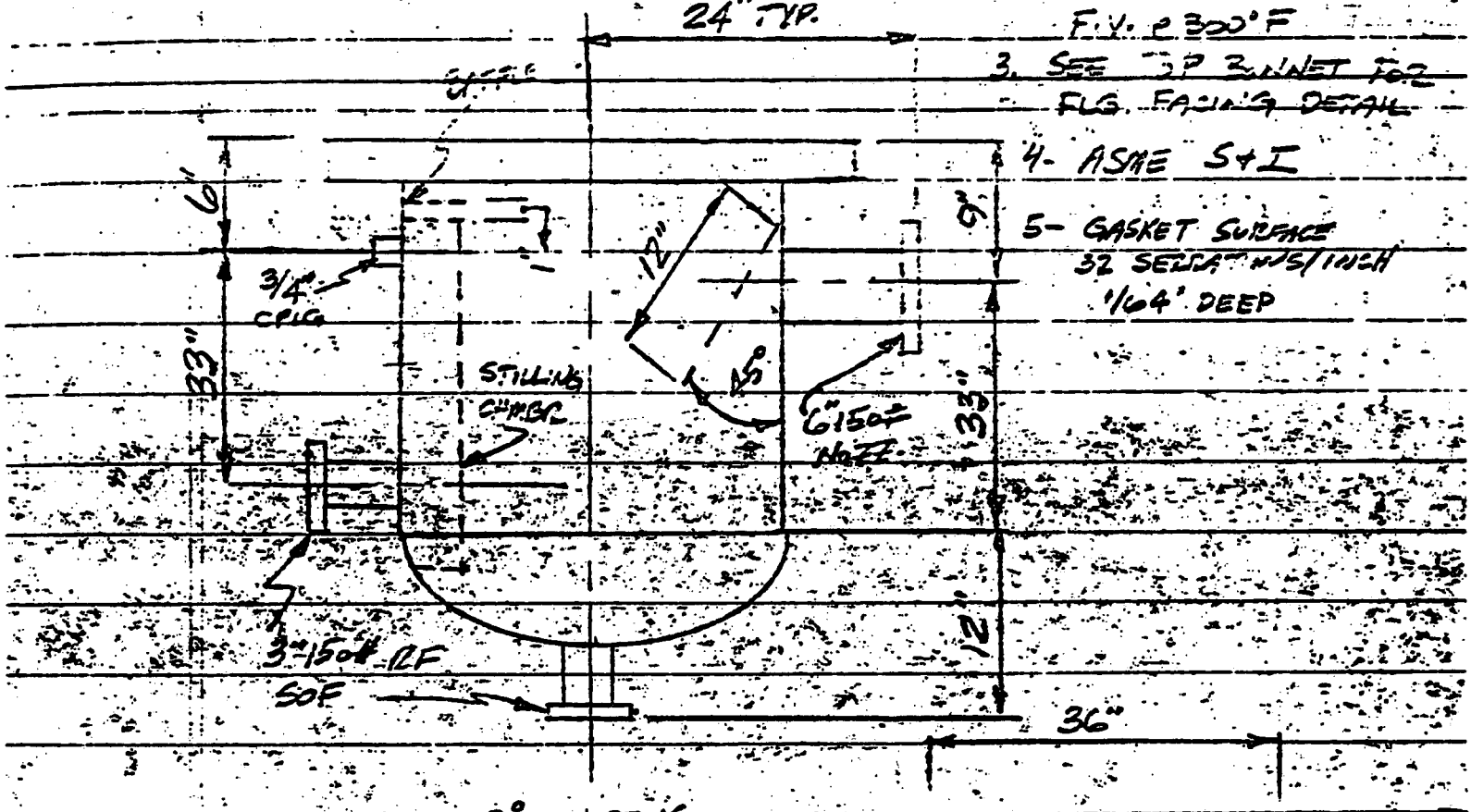
NOTE: 1. ALL WETTED PARTS 304L S.S.

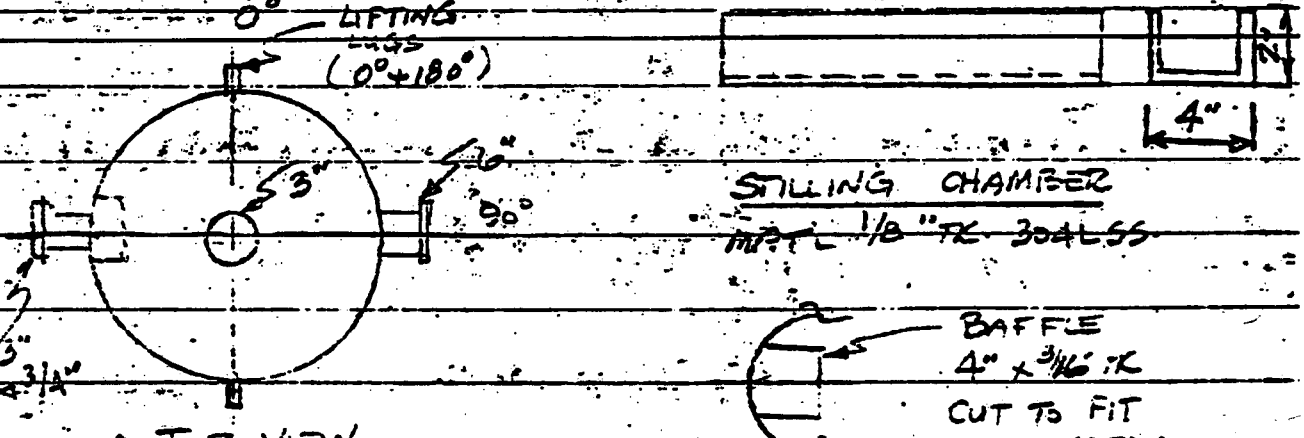
2. DESIGN 50PSI @ F.V. @ 300°F

3. SEE TP BONNET FOR FLG. FACING DETAIL

4- ASME S+I

5- GASKET SURFACE 32 SERRATIONS/INCH 1/64" DEEP





STILLING CHAMBER

MAT'L 1/8" TK 304LSS

BAFFLE 4" x 3/16" TK CUT TO FIT I.D., INSTALL ABOVE STILLING CHAMBER

J03' CPS CHEMICAL

P.O. # E-25943

RUBICON JOB # 1147

T-30/R-3 Condenser

R-3 Flow Schematic - Waste Processing